

REMARKS

This Amendment and the following remarks are intended to fully respond to the Office Action mailed October 31, 2006. In that Office Action, claims 1-7 and 20-25 were examined and rejected. Pending claim 26 does not appear to have been examined.

More specifically, claims 1-7 and 20-25 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention; In claim 1: “ the message,” “ the received message,” “each node,” “the other network nodes,” and “ the network nodes.” In claims 2, 5, 6: “the message.” In claim 3: “each node.” In claim 20: “other nodes,” “the network,” and “each node.” In claim 21: “some of the nodes.”

Claims 1-4, and 20-25 were rejected under 35 U.S.C. §102(b) as being anticipated by Caram (USPN 5,245,607); Claims 5 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Caram in view of Minyard (US Patent No. 6,779,038); and Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Caram in view of Kawano et al (US Patent no. 5,594,872). Reconsideration of these rejections, as they might apply to the original and amended claims in view of these remarks, is respectfully requested.

In this Response, claims 1, 2, 4, 5, 7, 20-22, 24-26 have been amended; no claims have been canceled or added. Claims 30-39 were previously withdrawn, of which claims 30, 32-34, and 36-39 have been amended. Therefore, claims 1-5, 7, 20-26 remain present for examination.

Support for the amendments to the claims, wherein the nodes identified in a partial view are determined based on a probability, is found at least on page 11, line 27- page 12, line 7. Other amendments herein are directed to the form of the claims.

Applicants again incorporate "independent of hierarchical relationships" language into the claims. The examiner rejected similar language under 35 U.S.C. §112, first paragraph lack of support in the specification as filed (5/23/2006 Office Action, page 2-3). Applicants sought to advance the application to allowance and removed the language to correct the form of the claims. In order to better claim that which the applicants regard as their invention, similar language is now introduced. Support is found in Fig. 1 of the original disclosure. It should be noted that

Fig. 1 and the accompanying specification *do not* include any language describing Fig. 1 as hierarchical. Rather all nodes are represented as identical computers systems, rather than as a server with clients or other illustration of rank or hierarchical relationship. These identical nodes communicate independent of any hierarchy as illustrated by node 110 and node 112 communicating with each other and with node 108.

Additional clarification of the non-hierarchical embodiments illustrated in Fig. 1 is found in the specification. "Similarly, node 104 may have communication information relating to nodes 102, 106 and 108, but no information relating to nodes 110 and 112, and so on." (Specification, page 7, lines 20-22). Had the applicants described a hierarchical network, a node (e.g., parent) would communicate with all nodes of one level (e.g., all grandchild nodes) and would not communicate with nodes of another level. In other words, if nodes 102, 106, and 108 were at the same level then a hierarchical network would be described. However, this is not the case. Node 102 and node 108 are adjacent to node 104 but node 104 also communicates with node 106. Node 106 is illustrated as having an intervening node (node 102) between node 104, however, node 112 also has an intervening node (node 108) but node 112 is excluded. This is a description supporting "nodes connected in a network environment" that are identified "independent of hierarchical relationships."

No new matter has been added.

Claim Rejections – 35 U.S.C. §112

Claims 1-7 and 20-25 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention; In claim 1: "the message," "the received message," "each node," "the other network nodes," and "the network nodes." In claims 2, 5, 6: "the message." In claim 3: "each node." In claim 20: "other nodes," "the network," and "each node." In claim 21: "some of the nodes."

The applicants respectfully disagree and traverse the rejection. Specifically, the examiner rejects claim 1 as being indefinite for including "resides locally," "the message," "the received message" "each node," "the other node" and "the network nodes." Amended claim 1 no longer

includes "the received message," "each node," and "the network nodes." Amended claim 1 states "a disseminated message" and thereafter refers to this element simply as "the message." As there is no other "message," the applicants believe such language to be sufficiently clear and definite. Claim 1 is directed towards a plurality of nodes, of which one is designated to be "the given node." The plain meaning of "other nodes" correctly describes that which the applicants regard as their invention. Specifically, for any node selected as "the given node" each node in the network can be described as either itself or an "other node."

The applicants have amended "resides locally" to state "resides locally to the given node" to further clarify the claim language.

Claims 2, 5, 6 are rejected as indefinite for citing, "the message." For reasons presented above, applicants believe this language to be clear and definite.

Claim 3 is rejected as indefinite for citing, "each node." Applicants believe the language to be clear. The claim cites a plurality of nodes and claim 3 recites a limitation in which each of these nodes maintains a partial view.

Claim 20 is rejected as indefinite for citing, "other nodes," "the network," and "each node." Applicants disagree that such language is indefinite. The user of "other nodes" and "each node" is believed to be clear and definite for reasons provided above. Amended claim 20 no longer cites "the network."

Claim 21 is rejected as indefinite for citing, "some of the nodes." Amended claim 21 no longer includes "some of the nodes."

Claim 1-7 and 20-25 are believed to be in allowable form. The applicants respectfully request withdrawal of the rejection.

Claim Rejections – 35 U.S.C. § 102(b)

Claims 1-4, and 20-25 were rejected under 35 U.S.C. §102(b) as being anticipated by Caram (USPN 5,245,607). The applicants respectfully disagree and traverse the rejection.

Caram fails to teach each and every claimed limitation of claim 1 required to sustain a rejection under 35 U.S.C. §102(b). This is not unexpected as Caram and the application are directed towards different communication paradigms. Caram teaches a system in which each node determines and maintains routing information to each other node. A message (which is not a broadcast-type message, *see below*) is sent to a specific end node only if a condition is met. "Specifically, a node X forwards a message to its neighboring node Y only if node X is closer to the source of the message than node Y is, including any other neighbor of node Y." (Caram, col. 1, lines 34-37). If Caram determines that another node is closer the message will not be sent, even though Caram has knowledge of the target node. In order to handle this process, Caram uses a routing table for each node. Consequently, as stated, each node is aware of each other node in the network. Caram provides a method that seeks to eliminate sending messages that may have already been received. (Caram, abstract). The application takes a different approach.

Amended claim 1 recites, in part, "for the given node, sending the message to a plurality of other nodes identified in a partial view, wherein the partial view is specific to the given node...and identifies any two or more but less than all other nodes." Claim 1 provides a method in which nodes in a network have knowledge of, and communicate with, a subset of other nodes of the network. Claim 1 enables a broadcast message, as opposed to one destined for a specific node, to be sent to a given node. This given node then sends the message to a limited number of other nodes maintained in a partial view. The number of nodes referenced in a partial view is determined based on the probability of all nodes receiving a message. This provides advantages over the art of reference as nodes may become orphaned due to broken connections caused by failed nodes or other problems. The robustness of the network can be tuned by adjusting the probability of a node receiving a message and, therefore, reducing orphaned nodes. For example, in a network with ten-thousand nodes, each node includes 3 nodes in their respective partial views. The probability of an orphaned node missing a message would therefore be higher than if each node included 100 nodes in their respective partial views.

Caram makes each node is aware of each other node in the network. (Caram, col. 3, line 33-line 42). As a node is added or deleted there may be a lag in which the addition or deletion is propagated to each other node. A node, after processing the addition or deletion of a node, would build or update a minimum spanning tree. The node would then send the minimum

spanning tree to the node's neighbors. The node's neighbors would in turn update their respective minimum spanning trees for forwarding to their neighbors' neighbors and so on. Nodes then build routing tables from their minimum spanning tree. (Caram, col. 3, lines 49-61). Again, the application takes a different approach.

Amended claim 1 provides that broadcast message is received and sent but only to "a plurality of other nodes identified in a partial view." The partial view "identifies any two or more but less than all other nodes." This may prove especially beneficial in large networks, such as when the networks are "quite extensive incorporating thousands, to tens of thousands of nodes." (Applicants' specification, p. 8, lines 5-6). In such networks, it is impractical to attempt to build a routing table for each node to have knowledge of each other node. While Caram recognizes that network topology may be dynamic, Caram operates on the assumption that updating each node with new topology information is manageable. More specifically, Caram incorporates US Patent 4,466,060 to Riddle in which a central processor for a node is notified of the addition or deletion of a node (4,466,060, col. 5, lines 54-61). Riddle provides a process wherein each node builds an exclusionary tree and forwarding the exclusionary tree to each connected node, whereby each receiving node performs the "process of assembling received exclusionary trees into a routing graph identifies the minimum distance paths from the present node, node 1, **to each other node in the network**." (Riddle, col. 9, lines 31-39, emphasis added).

In contrast, the application assumes that updating each node with the dynamic topology information may not be manageable. Amended claim 1 recites, "identifies any two or more but less than all other nodes, ...wherein the number of nodes identified in the partial view was determined in order to provide a determined probability of the message being sent to all nodes." Each node has a partial view of the entire network. When a new node is added or removed only a few nodes need to be updated in order for all nodes to be reachable to receive broadcast-type messages.

Amended claim 1 recites sending a message to other nodes, "the message having broadcast-type information." Broadcast-type messages are not addressed to a specific recipient

but rather to all nodes of the network. (Application, page 1, lines 13-20). Caram is silent as to a message having broadcast-type information.

For at least the reason presented above, claim 1 is believed to be allowable as Caram fails to anticipate each and every claimed limitation. Claim 20 and 24 are believed to be allowable for reasons similar as to why claim 1 is allowable. Depended claims 2-4, 21-22, and 25, are also believed to be allowable for reciting further limitations of claims 1, 20, and 24, respectively. Accordingly, the applicants respectfully request withdrawal of the rejection and allowance of said claims.

Claim Rejections – 35 U.S.C. § 103

Claims 5 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Caram in view of Minyard (US Patent No. 6,779,038).

The applicants respectfully disagree and traverse the rejection. As presented above, Caram fails to anticipate amended claim 1 from which amended claim 5 and claim 6 depend. Caram fails to anticipate each claimed limitation of amended claim 5 and claim 6 and Minyard fails to teach that which is absent in Caram. More specifically, the combination of Caram and Minyard fail to teach or disclose the use of a partial view. Accordingly, the applicants respectfully request withdrawal of the rejection and allowance of amended claims 5 and 6.

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Caram in view of Kawano et al (US Patent no. 5,594,872).

The applicants respectfully disagree and traverse the rejection. As presented above, Caram fails to anticipate amended claim 1 from which amended claim 7 depends. Caram fails to anticipate each claimed limitation of amended claim 7 and Kawano fails to teach that which is absent in Caram. More specifically, the combination of Caram and Kawano fail to teach or disclose the use of a partial view. Accordingly, the applicants respectfully request withdrawal of the rejection and allowance of amended claim 7.

Conclusion

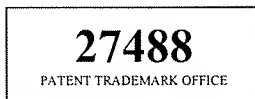
It is believed that no further fees are due with this Response. However, the Commissioner is hereby authorized to charge any deficiencies or credit any overpayment with respect to this patent application to deposit account number 13-2725.

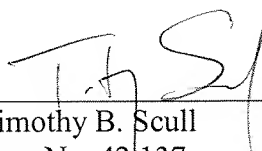
In light of the above remarks and amendments, it is believed that the application is now in condition for allowance and such action is respectfully requested. Should any additional issues need to be resolved, the Examiner is requested to telephone the undersigned to attempt to resolve those issues.

Respectfully submitted,

MERCHANT & GOULD P.C.

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